

REMARKS

The recitation restricting the range of "q" and respecting the origin of "X" recited in new Claim 21 find support in the specification in page 16, line 18 and page 17, lines 1-2 respectively.

As presently amended Claim 4 is believed to in proper dependent form.

Amended Claims 9 and 10 are believed to comply with the statutory requirements under 35 U.S.C. 112 second paragraph.

The presently claimed invention is directed to a flame resistant thermoplastic molding composition that contains

polycarbonate (and /or polyester carbonate) the molecular structure of which features any of a group of diphenols;

an impact modifier characterized in that it contains a rubber portion and a rubber free vinyl(co)polymer;

an optional vinyl(co)polymer and/or polyalkylene terephthalate; and

a phosphorous compound conforming to a recited structure.

The composition is further characterized in that its relative proportions of rubber and rubber-free vinyl(co)polymer. Also, as presently amended, the phosphorous compound is one wherein its characteristic bridging group "X" is a derivative of bisphenol A.

The claimed composition features advantageous properties including improved stress cracking resistance. Attention is respectfully called to the Declaration by Inventor Eckel (the presently submitted Declaration is unsigned; a signed Declaration is to follow shortly) wherein demonstrated is the dependence of the properties of the composition on the identity of the included phosphorous compound.

Accordingly, the compositions described in the table below were prepared and their properties determined. In addition to the indicated components, each composition further contained 0.4% PTFE and 0.4% of a conventional mold release agent, none believed to be critical to the invention.

Table 1

Composition	7	8(comparison)	9	10 (comparison)
Polycarbonate ¹ , %	70.0	70.0	81.0	81.0
Impact strength modifier ² , %	10.7	10.7	8.2	8.2
Vinyl(co)polymer ³ , %	5.5	5.5	--	--
Phosphorous compound -2 ⁴ , %	--	13.0	--	10.0
Phosphorous compound -3 ⁵ , %	13.0	--	10.0	--
Properties:				
Notched Impact strength ⁶ @ -20°C (kJ/m ²)	25	20	38	26
Vicat B ⁷ 120, °C	103	94	105	97
Flammability rating UL 94V, 1.6mm	V-0	V-0	V-0	V-0
Stress cracking ⁸ - failure at 2.4% strain (minutes:seconds)	4:38	3:42	2:49	2:22

-¹ Linear polycarbonate based on bisphenol A with a relative solution viscosity of 1.272, measured in CH₂Cl₂ as solvent at 25 °C and a concentration of 0.5 g/100 ml.

-² Graft polymer consisting of 40 parts by wt. of a copolymer from styrene and acrylonitrile in the ratio of 72 : 28 on 60 parts by wt. of crosslinked polybutadiene rubber in particulate form (mean particle diameter d₅₀ = 0.32 μm), prepared by emulsion polymerization. By means of extraction in methyl ethyl ketone, subsequent precipitation and drying the rubber-containing portion B_a is determined to be 80 wt.% and the rubber-free portion B_b to be 20 wt.% (based on B).

-³ Styrene/acrylonitrile copolymer with a styrene/acrylonitrile ratio by weight of 72 : 28 and an intrinsic viscosity of 0.55 dl/g (measurement in dimethyl formamide at 20 °C).

-⁴ m-phenylene-bis (di-phenylphosphate),

-⁵ Bisphenol-A-based oligophosphate,

-⁶ in accordance with ISO 180/1 A.

-⁷ according to DIN 53 460 (ISO 306) on rods 80 x 10 x 4 mm³ in size

-⁸ according to UL- 94 V on rods 127 x 12.7 x 1.6 mm in size produced on an injection molding machine at 240 °C.

The results show the critical dependence of notched impact strength at low temperatures, the softening temperature and the stress cracking resistance on the phosphorous compound. The inclusion of the claimed phosphorous compound offers significant advantages over a differently structured phosphorous compound.

The declaratory evidence support Applicants position that their invention is patentable over the cited U.S. Patent 5,126,404 (herein Eckel) in view of U.S. Patent 5,204,394 (herein Gosens), art cited in the prosecution of the parent patent application. Nothing in the cited art may reasonably be taken to describe or suggest the surprising and unexpected properties characterizing the claimed invention.

U.S. Patent 5,552,465 (Witmann) cited in the prosecution above, disclosed a composition that contains a phosphorous compound (column 5 line 55) that does not describe the phosphorous compound of the presently claimed invention. As presently claimed Component D is characterized in that its repeating unit is in the range of 0.3 to 20 and the composition is believed patentable over Witmann.

DE4235642 (the '642 document) in view of U.S. Patent 4,937,285 (Wittmann II) has been cited in the prosecution above, said to render the claimed invention unpatentable. The '642 document fails to recognize the critical difference between Mo-6623

the several phosphorous compounds embraced by its generic phosphorous formula (Formula I page 2, line 50). There is nothing in the secondary document to add to the '642 document in a presently meaningful manner.

CA2300216 (Alberts) optionally in Witmann(II) has been cited in the prosecution above. Alberts disclosed a mixture of at least one mono-phosphorous and at least one oligo-phosphorous compound of a specifically structured formula, formula (I) in page 2, line 22. Alberts fails to recognize the critical difference between the several phosphorous compounds embraced by its generic phosphorous formula. There is nothing in the secondary document to add to the Alberts document in a presently meaningful manner.

An early examination on the merit is solicited.

Respectfully submitted,

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